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**Laboratory Studies of Plasma Double Layers
in Non-Uniform Magnetic Fields**

Final Technical Report

Final Patent/Invention Report

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PART I: Final Technical Report

1. J. C. Johnson, N. D'Angelo, and R. L. Merlino, A Double Layer Induced Ionisation Instability, *J. Phys. D: Appl. Phys.* **23**, 682, 1990
2. B. Song, R. L. Merlino, and N. D'Angelo, Transition from Moving to Stationary Double Layers in a Single-Ended Q Machine, *Phys. Fluids B* **2**, 1936, 1990
3. R. L. Merlino and J. J. Loomis, Double Layers in a Plasma with Negative Ions, *Phys. Fluids B* **2**, 2865, 1990
4. B. Song, R. L. Merlino, and N. D'Angelo, Potential Relaxation Instability and Ion Acoustic Waves in a Single-Ended Q-Machine Plasma with Negative Ions, *Phys. Lett. A* **153**, 233, 1991
5. B. Song, N. D'Angelo, and R. L. Merlino, On Anode Spots, Double Layers and Plasma Contactors, *J. Phys. D: Appl. Phys.* **24**, 1789, 1991
6. B. Song, R. L. Merlino, and N. D'Angelo, On the Stability of Strong Double Layers, *Phys. Scr.* **45**, 391, 1992
7. B. Song, R. L. Merlino, and N. D'Angelo, The Effect of a Magnetic Field Gradient on Anode Double Layers, *Phys. Scr.* **45**, 395, 1992
8. B. Song, R. L. Merlino, and N. D'Angelo, Measurements of the Perpendicular Width of Ionization-Produced Double Layers, *IEEE Trans Plasma Sci.* **20**, 476, 1992
9. T. An, R. L. Merlino, and N. D'Angelo, Cylindrical Anode Double Layers ('Firerods') Produced in a Uniform Magnetic Field, *J. Phys. D: Appl. Phys.* **27**, 1906, 1994

PART II: Final Patent/Invention Report

No patents were filed for under this grant.